EPR Spectroscopy

https://www.chimica.unipd.it/eprlab/

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The research activity of the group is focused on the development and application of Electron Paramagnetic Resonance (EPR) techniques to **Material Science** (graphene, metal nanoparticles, organic photovoltaics, cultural heritage materials), and **Biology** (natural and artificial photosynthetic systems, hydrogenases and bio-inspired analogs for the bio-production of hydrogen, protein dynamics as detected by spin labelling techniques). The facilities of the EPR Laboratory include the following spectrometers: •X/Q-

band EPR with CW, pulsed, ENDOR, PELDOR and time-resolved accessories •X-band EPR with CW, pulsed, ENDOR, and time-resolved accessories •X-band CW-EPR for routine experiments •X-band time-resolved EPR for analysis of light-induced processes •Optically detected Magnetic Resonance (ODMR). •UV-Vis. We also have available an FPLC for protein purification.

1. *Altering the exciton landscape by removal of specific chlorophylls in monomeric LHCII provides information on the sites of triplet formation and quenching by means of ODMR and EPR spectroscopies,* BBA Bioenerg., **2021**, 1862, 148481.
2. *Orientation-Selective and Frequency-Correlated Light-Induced Pulsed Dipolar Spectroscopy*, J. Chem. Phys. Lett., **2021**, 12, 3819 - 3826.
3. *Spin–Orbit Charge-Transfer Intersystem Crossing of Compact Naphthalenediimide-Carbazole Electron-Donor–Acceptor Triads*, J. Phys. Chem. B, **2021**, 125, 10813 - 10831.
4. *Understanding and controlling the efficiency of Au24M(SR)18 nanoclusters as singlet-oxygen photosensitizers*, Chem. Sci., **2020**, 11, 3427 - 3440.
5. *Quantification of Photophysical Processes in All-Polymer Bulk Heterojunction Solar Cells*, Sol. RRL, **2020**, 4, 2000181.